A.H.P.

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REVISIONAL NOTES ON ORIENTAL LYCAENIDAE: I.

By the late A. Steven Corbet, D.Sc., Ph.D., F.R.I.C.
(*British Museum, Natural History.*)

The genus **Poritia** Moore.

Following a re-investigation of the genus *Poritia*, with added material from the Tring Museum, I feel sure that one or two specimens which puzzled me at the time of the previous examination (Corbet, 1940, *Trans. R. ent. Soc. Lond.* **90** : 337), bear incorrect locality labels. This has led to incorrect conclusions and the following amendments are necessary.

The unique holotype of *P. hewitsoni marakata* Corbet, from "Malay Peninsula," agrees with males of *P. hewitsoni hewitsoni* Moore from Sikkim and Assam, and there is no other evidence that this species occurs south of Burma and Siam. Therefore *marakata* Corbet, 1940, falls as a synonym of *P. hewitsoni hewitsoni* (Moore), 1865.

P. pleurata Hewitson and *P. phama* H. H. Druce are conspecific, and the subspecies and their synonymy are as under :

geta Fawcett, 1897, Manipur to the Dawnas, *regia* Evans, 1921, Tavoy to Peninsular Siam, *pleurata* Hewitson, 1874 (= *taleva* Corbet, 1940), Malaya, *rajata* Corbet, 1940, Sumatra, *phama* H. H. Druce, 1895, Borneo, *fruhstorferi* Corbet, 1940 (= *pheda* Corbet, 1940), West Java, and *courvoisieri* Fruhstorfer, 1917, East Java.

Three females of *P. manilia* Fruhstorfer, from North-east Sumatra, have been found in the Tring Museum. The upperside is black, with a few blue (green by reflected light) post-discal spots on the fore wing, and the hind wing has a few small, obscure, orange brown spots beyond the cell. Superficially, the female of *P. manilia* is quite different from that of *P. dawna* Evans, from Burma, and, in view of the apparent absence of a representative from the Malay Peninsula, it appears advisable to regard them as separate species.

Miletus ancon ancon (Doherty).

Recently I have seen specimens of *M. ancon gigantes* (de Nicéville) from Penang Hill and Perak (Gunong Ijau), and consider it probable that a male and female of *M. ancon ancon* (Doherty) in the British Museum, from "Perak, juillet-août, 1895 (*Lakatt and Pamboo*)," ex Coll. Oberthür, are incorrectly labelled ; it is likely that they came from Tavoy, whence Lakatt and Pamboo obtained other specimens of *M. ancon ancon* (Doherty). It is probable that this species is represented in Malaya by the single subspecies *gigantes* (de Nicéville) (see Corbet, 1940, *Proc. R. ent. Soc. Lond.* (B) **9** : 1).

Arhopala atosia malayana Bethune-Baker.

Arhopala malayana Bethune-Baker, 1903, *Ent. mon. Mag.* **39** : 218 ; ♂, Singapore.

The type of *malayana* proves to be in the Tring Museum and, as surmised (Corbet, 1946, *Trans. R. ent. Soc. Lond.* **96** : 80), it is nothing more than a full-sized male of *A. atosia*. It has a fore-wing length of 22·5 mm., and so Bethune-Baker's figure "exp. alar., 52 mm," is misleading. The name *udapa* Corbet, 1941, falls as a synonym of *A. atosia malayana* Bethune-Baker.

The **democritus** Group of the Genus **Arhopala** Boisduval.

When dealing with the *democritus* group of *Arhopala* (Corbet, 1941, *Proc. R. ent. Soc. Lond.* (B) **10** : 158, 159) I was unable satisfactorily to place the forms *myrtale* (Staudinger) and *myrtha* (Staudinger) from Palawan, *havilandi* Bethune-Baker from Borneo (Kina Balu), and *mindanensis* Bethune-Baker from Mindanao. Since then a little more material has come to hand, and it seems that the position is more complex than at first appeared.

There is no difficulty in identifying *A. anella* de Nicéville, *A. democritus* (Fabricius), and even *A. alitaeus* (Hewitson), but the remaining species of the group, with similar male genitalia, are by no means easy to determine. They may be separated, however, on superficial characters by means of the following amendment to the key already given :

5 (10) UnF with a spot at the base of space 10 over the central cell spot.
6 (7) UnF post-discal spot in space 2 moved outwards
A. alitaeus (Hewitson)

(Races are as given previously in Corbet, 1941 : 158. A race from Mindanao remains to be described.)

7 UnF post-discal spot in space 2 immediately below that in space 3.
8 (9) Un hair brown as usual, with the markings annular
A. myrtale (Staudinger)

(Races are **epibata** subsp. n., Singapore, also Sumatra, and *myrtale* (Staudinger, 1889), Palawan (figured in Bethune-Baker, 1903, *Trans. zool. Soc. Lond.* **17** : pl. i, fig. 25, ♂)).

9 Un crimson brown, with deep crimson brown, rather confluent markings
A. sintanga sp. n.

(Only the nominotypical race **sintanga** sp. n., from West Borneo, known.)

10 UnF no spot at the base of space 10.
11 (12) UnF no spot in the costal half of space 11 . . **A. myrtha** (Staudinger)

(Races are *myrtha* (Staudinger, 1889), Palawan (figured in Bethune-Baker, 1903, pl. i, fig. 23, ♂), and, probably, *mindanensis* Bethune-Baker, 1903, Mindanao (figured in Bethune-Baker, 1903, pl. i, fig. 24, ♂). There are no examples of *mindanensis* in the British Museum.)

12 UnF with a spot in the costal half of space 11.
13 (16) Fore wing apex acute and termen rather straight. ♂ up purplish blue with uniform black bordering (about 1·0 mm.) on both wings
14 (15) Un purple glazed, with the reddish brown post-discal markings confluent . . . . . **A. atrax** Hewitson

(Races are *aida* de Nicéville, 1889, Burma, also Langkawi Islands, and *atrax* (Hewitson, 1862), Malaya (figured in Corbet, 1946, pl. 3, fig. 39, ♂ H.T.).)

15 Un not purple glazed, and the markings comprising more or less separated spots outlined with narrow, yellowish buff lines
A. ariana Evans

(Races are *ariana* (Evans, 1925), Tavoy (figured in Evans, 1932, *Ident. Ind. Butt.*, pl. xxviii, fig. H.49.19, und.), and *ariavana* Corbet, 1941, Langkawi Islands, also Malaya proper. A male in the British Museum from south Annam probably represents a new race.)

16 F apex blunt and termen rounded. ♂ up deep lustrous purplish blue with the black bordering a thread.

17 (18) Un usually strongly purple washed, and the markings distinctly darker than the ground . . . **A. havilandi** Bethune-Baker

(Races are *arianaga* Corbet, 1941, Malaya (♂ *holotype* Perak, G. Kledang, ♀ *allotype* Selangor, B. Kutu, 2300 ft.) (figured in Corbet, 1946, pl. 3, fig. 40, ♂ H. T.), and *havilandi* Bethune-Baker, 1896, Borneo, Kina Balu (figured in Bethune-Baker, 1896, *in* H. H. Druce, 1896, *Proc. zool. Soc. Lond.* **1896**, pl. xxx, fig. 8, ♂ *holotype*, ♀ *allotype*). Neither of the types of *arianaga* has the underside purple washed, but I have seen a series of 5 ♂♂, 2 ♀♀ from Johore, Lombong, v-x.1938 (*Major C. F. Cowan*), with the underside purple washed exactly as in the nominotypical form from Borneo.)

18 Un hair brown and not purple washed, and markings hardly darker than the ground . . . . **A. rafflesii** de Nicéville

(Races are as given previously in Corbet, 1941 : 159.)

Arhopala myrtale epibata subsp. n.

♂. *Upperside* deep lustrous blue, with narrow black bordering; in fact, the upperside is precisely as in *A. rafflesii rafflesii* de Nicéville, ♂ from Malaya. *Underside* hair brown, very faintly purple washed, and with the markings arranged as in *A. havilandi arianaga* Corbet, but more annular than in that species. The underside markings are darker than the ground, and outlined with yellowish buff. Differs from *A. havilandi* forms in the presence of a spot at the base of space 10 on the underside of the fore wing.

Fore wing 19·0 mm.

Holotype. SINGAPORE, 1939 (*Brigadier A. W. G. Wildey*) (B.M. Rhop. Type No. 15085). Also examined ♂, ♀ with the same data, and ♂, Singapore, 28.ix.1919 (*C. L. Collenette*), and ♂, West Sumatra, Lebong Tandai, vi.1923 (*C. J. Brooks*). A ♂, North Borneo, ex Coll. Fruhstorfer, is doubtfully placed here.

Arhopala sintanga sp. n.

♂. *Upperside* violet blue, with a very narrow black border on both wings. *Underside* crimson brown, faintly purple washed in the basal and discal areas, with the markings arranged as in *A. havilandi* Bethune-Baker, but more annular and not as confluent. Differs from *A. havilandi* in having a costal spot in the basal part of space 10 on the fore wing.

Fore wing 19·0 mm.

♀. *Upperside* fore wing purple, with an obscure whitish discal patch around the basal parts of spaces 2, 3 and 4, the costa with the basal half narrowly and irregularly blackened, and the distal half of the costa with a broad black border just entering the cell and extending to below vein 5; the black border is continued uniformly (about 2·5 mm. wide) along the termen to the tornus. Hind wing entirely blackish brown, with a slight purplish hue.

Fore wing 18·5 mm.

♂ *Holotype* and ♀ *Allotype*.—WEST BORNEO, Sintang, v.1910, ex Coll. Fruhstorfer. B.M. Rhop. Types Nos. 15086 and 15087. Also in the British Museum a ♂ with the same data and a ♀ from the same locality but dated vi.1910.

Arhopala agaba (Hewitson).

Hitherto only known from Burma and Siam, a male was taken in the Langkawi Islands, off the north-west coast of Malaya, on 15.ii.1947 (*M. J. V. Miller*).

Arhopala alea alea (Hewitson).

Two males taken on the Langkawi Islands (15.ii.1941 and 28.iii.1941) (*M. J. V. Miller*) extend the range of the species, which was previously known only from Assam to Peninsular Siam and the Andaman Islands.

Arhopala bazaloides (Hewitson).

This species was known only from South India and Assam to North Burma, but a male was taken on the Langkawi Islands on 4.ii.1940 (*M. J. V. Miller*).

Genus **Jacoona** Distant.

It is considered that the species hitherto ranged under *Jacoona* Distant 1884 (Type and sole species *Myrina anasuja* C. and R. Felder, 1865), *Neocheritra* Distant, 1885 (Type and sole species *Myrina amrita* C. and R. Felder, 1860), *Thrix* Doherty 1891 (Type and sole species *Thrix gama* Doherty *nec* Distant, 1891 [= *Neocheritra nisibis* de Nicéville, 1895]), *Manto* de Nicéville, 1895 (Type selected by author *Myrina hypoleuca* Hewitson, 1865), *Pseudomyrina* H. H. Druce, 1895 (Type selected by author *Myrina martina* Hewitson, 1869), *Virgarina* H. H. Druce, 1895 (Type and sole species *Sithon scopula* H. Druce, 1873) and *Mantoides* H. H. Druce, 1896 (Type and sole species *Mantoides licinius* H. H. Druce, 1896), on the basis of the different male secondary sexual characters, should be included in the single genus *Jacoona* Distant.

Doherty (1891, *J. asiat. Soc. Bengal* **60** (2) : 35) misidentified the male of the Malayan *J. scopula nisibis* (de Nicéville) as the unknown male corresponding to Distant's female *Neocheritra gama*. He erected the genus *Thrix* for *J. scopula*, incorrectly referring to it as *T. gama*.

The male of *J. scopula scopula* (H. Druce), from Borneo, differs from that sex of *J. s. nisibis* de Nicéville, from Malaya and Sumatra, and from *J. s. cloella* (Weymer), from Nias, in that the fore wing has vein 8 missing. The figure in H. H. Druce, 1896, *Proc. zool. Soc. Lond.* **1896**, pl. xxxi, fig. 13, ♂, represents *J. scopula* from Malaya, Sumatra or Nias (not Borneo), and is not the male of *J. gama* (Distant) as stated.

The British Museum collection contains three new subspecies of *Jacoona* species.

J. anasuja nigerrima subsp. n.

♂. *Upperside* with the blue colour paler and more greenish than in *anasuja* (C. and R. Felder), and with the blue band beyond the fore wing cell reduced to a short bar and almost obsolete in some specimens.

♀. *Upperside* hind wing with the black tornal spots more elongate and smaller than in any other described race.

♂♀. *Underside* with the orange colour fainter and more restricted than in other races, and with the black markings in the tornal area of the hind wing fainter and narrower.

Burma. ♂, Angranlong, ♂, Maymyo, 4 ♂♂, including holotype (B.M. Rhop. Type No. 15089), Karen Hills, ♀ allotype (B.M. Rhop. Type No. 15090), East Pegu, 2 ♂♂, Ataran Valley, and ♂, ♀, Tavoy.

J. gama maga subsp. n.

♂♀. *Underside* much paler than in *gama* (Distant), and the hind wing with the black post-discal stripes much narrower and the black subtornal stripe in space 1*b* obsolete.

Burma. ♂ Holotype and ♀ allotype (B.M. Rhop. Type Nos. 15091 and 15092), Karen Hills, and 2 ♂♂, Tavoy.

The subspecies *gama* (Distant) occurs in Malaya and North-east Sumatra, while *licinius* (H. H. Druce) (= *myrmecus* (Seitz)) is the race from Borneo.

J. hypoleuca birminia subsp. n.

♂. *Upperside* bluish green and nearest to *hypoleuca*, from which it differs in the more prominent whitening at the distal ends of spaces 1*a*, 1*b* and 2 on the hind wing both above and beneath.

♀. Upperside hind wing with the black tornal spots in spaces 1*b* and 2 separated as in *hypoleuca* (although smaller), and not conjoined as in other races.

♂♀. *Underside* hind wing with the ochreous colouring more extensive than in *hypoleuca*.

Burma. ♂, Karen Hills, 2 ♂♂, ♀ (including ♂ holotype and ♀ allotype, B.M. Rhop. Type Nos. 15093 and 15094), Tavoy, 2 ♂♂, Mergui, and ♂, ♀, Victoria Point.

Chliaria amabilis de Nicéville.

Chliaria amabilis de Nicéville, March, 1895, *J. Bombay nat. Hist. Soc.* **9** : 309, pl. P, fig. 42, ♂ ; ♂, Java.

When de Nicéville published this name, with habitat " N.-E. Sumatra ; Java," he was under the impression that he was describing a species which had already been denominated by Martin in Sumatra. Actually, de Nicéville's publication appeared first, and, as he stated explicitly that his description and figure were based on a single specimen from Java, this island, and not Sumatra, must be taken as the type locality of his *C. amabilis*.

De Nicéville received his type specimen on loan from Fruhstorfer, but, as the Fruhstorfer collection has no Javanese specimen of *C. amabilis* labelled as described in de Nicéville's paper, it must be concluded that the type specimen has been lost.

The Sumatran representative of *C. amabilis* is subspecifically distinct from the nominotypical form and requires a name ; *phemis* (H. H. Druce) is the race from Borneo, while the Malayan subspecies remains to be described.

Chliaria amabilis martini nom. nov. pro *amabilis* Martin *nec* de Nicéville.

Zeltus amabilis Martin, October, 1895, *Einige neue Tagschmetterlinge von Nordost-Sumatra*, pt. 2 : 11 ; ♂, North-east Sumatra (preoccupied by *Chliaria amabilis* de Nicéville, March, 1895).

The type specimen in the Tring Museum is labelled " Selesseh, N.E. Sum., vi.94. Dr. Martin."

In the male the upperside is less dingy than in *amabilis* de Nicéville, from Java, and the black subtornal spots in spaces 1*a*, 1*b* and 2 on the hind wing are smaller and more obscure. The large black subtornal spot in space 2 on the underside of the hind wing is smaller than in *amabilis*. The British Museum has three more males from North-east Sumatra, taken by Dr. Martin, ex Coll. Fruhstorfer.

Chliaria amabilis lisba subsp. n.

♂. *Upperside*. Differs from *amabilis* de Nicéville, from Java, in that the inner edge of the black bordering on the fore wing is rather diffuse and not clearly defined as in the other races, and the black subtornal spots in spaces 1*b* and 2 on the hind wing are obsolete.

Differs from *phemis* (H. H. Druce), from Borneo, in the purer blue colour, and the broader black border on the fore wing.

Underside. Hardly differs from that of *amabilis*, from Java.

Fore wing 13·5 mm.

Malay Peninsula, 2 ♂, Pahang, Cameron Highlands, Tanah Rata, 4000 feet, 13.i.1930 (*A. S. Corbet*), including the holotype (B.M. Rhop. Type No. 15095) ♂, Selangor, Bukit Kutu, 3485 feet, 13.iii.1931 (*A. S. Corbet*) ; ♂, Johore, Lombong, 26.vi.1938 (*C. F. Cowan*) (fore wing length 9·0 mm.) ; ♂, Penang Hill, 10.viii.1941 (*M. J. V. Miller*). The Penang specimen is the most northerly example of the species known to me.

REVISIONAL NOTES ON ORIENTAL LYCAENIDAE : II.

By the late A. Steven Corbet, D.Sc., Ph.D., F.R.I.C.
(British Museum, Natural History.)

Niphanda asialis (de Nicéville).

The male holotype of *Azanus asialis* de Nicéville (1895, *J. Bombay nat. Hist. Soc.* **10** : 33, pl. S, fig. 22, ♂ ; ♂, North-east Sumatra, Battak Mountains) has been found in the Rothschild Collection. It has the structural characters usually associated with the genus *Niphanda* Moore, but is without the hieroglyphically marked androconial scales found in *N. tessellata* Moore. The genitalia of the type specimen are shown in fig. 1.

It has been confirmed that the female *Niphanda* specimen from Malaya described by Pendlebury and Corbet (1933, *J. F.M.S. Mus.* **17** : 402) is, in fact, the female of de Nicéville's species, as these authors supposed. These two specimens appear to be the only known examples of *N. asialis*.

The **pavana** group of the genus **Nacaduba** Moore.

Since the publication of a revision of the Malayan species of *Nacaduba* (Corbet, 1938, *Trans. R. ent. Soc. Lond.* **87** : 125), more material of the *pavana* group has passed through my hands, and it has been possible to dissect the male holotype of *Nacaduba hermus* (C. Felder) in the Tring Museum. This latter specimen proved to be the Amboinese representative, not of the *N. hermus* in my previous paper, but of the species dealt with as *N. nabo* by Toxopeus (1929, *Tijdschr. Ent.* **72** : 215) and myself. Unfortunately, this involves a change in nomenclature, as *hermus* is the older name.

Examination of more material from Neomalaya has shown that the forms hitherto divided among the " species " *N. hermus*, *N. sanaya* and *N. intricata* in my previous paper are all referable to a single collective species for which the oldest name appears to be *N. lysa* Fruhstorfer, although this matter is discussed further below. Fortunately, with very few exceptions, the type specimens are in the National Collection.

There has been some doubt regarding the type specimen of *N. vajuva varia* Evans, but it has now been found and identified as *N. pactolus macrophthalma* (C. Felder) : Evans' name, therefore, falls as a synonym.

The arrangement of the species and their component forms should now be as in the following key.

Key to the species of the pavana *group of* Nacaduba *Moore.*

(unF without a pair of pale basal lines in the cell. Hind wing tailed.)

1 (2) UnH with a prominent, rounded, black spot at the apex
N. angusta (Druce)
(Malaysian races are as given previously in Corbet, 1938 : 129.)

2 ♂nH without such a spot.

3 (12) ♀F apex pointed. Un wings without a dark submarginal line.

4 (5) Un markings diffuse, yellowish and very broad, and those on F continuous . . . . . **N. pactolus** (Felder)
(Malaysian races are as given previously in Corbet, 1938 : 129.)

5 Un markings white or whitish, and narrow as usual.
6 (9) UnH with the white stripes in spaces 4 and 5 straight and conjoined.
7 (8) ♂ upF black border nearly 1 mm., and increasing towards the apex. ♀ up deep purple blue; F with comparatively narrow and uniform black costal and distal borders . . . **N. asaga** Fruhstorfer

(Races are *pendleburyi* Corbet, 1938, Malaya (identity of ♀ allotype uncertain), and *asaga* Fruhstorfer, 1916, Borneo.)

8 ♂ up with a slight frosted appearance, and F black border a thread. ♀ up lustrous purplish blue; F black border broader, and increasing towards the apex. . . . . **N. hermus** (Felder) (= *N. nabo* Toxopeus, 1929, Corbet, 1938.

(Races are *sidoma* Fruhstorfer, 1916, South India, *nabo* Fruhstorfer, 1916, Assam, *vicania* Corbet, 1938 (= *major* Evans, 1932, praeocc.), Nicobar Islands, *swatipa* Corbet, 1938, Malaya, also Sumatra and Borneo, *valvidens* Toxopeus, 1929, Java, *minja* Fruhstorfer, 1916, Lombok, also Sumba and Sumbawa, *tairëa* Fruhstorfer, 1916, Bazilan, and *hermus* (C. Felder, 1860), Amboina.)

9 UnH with the white stripes in spaces 4 and 5 comma-like and not in line.
10 (11) ♂ up greyish blue, with a greenish hue; F black border a thread. Ceylon . . . . . **N. ollyetti** Corbet

(A single form *ollyetti* Corbet, 1947, Ceylon.)

11 ♀ up deep purple (with a slight greenish hue in Philippines and Celebes); F black border a thread. ♀ up shining sky blue, with the F black bordering increasing towards the costa and tornus, and the discal area slightly whitened. India to Malaysia, Philippines and Celebes . . . . **N. lysa** (Fruhstorfer) (= *N. hermus* Corbet, 1938, *nec* C. Felder.)

(Races are *intricata* Corbet, 1938 (= *elioti* Corbet, 1938), Malaya, also Assam, Burma and West Siam (♀ allotype of *intricata* Corbet, is a ♀ of *N. asaga pendleburyi* Corbet), *lysa* Fruhstorfer, 1916, Sumatra, *sanaya* Fruhstorfer, 1916, *thalia* Corbet, 1938, Borneo, *naevia* Toxopeus, 1929, Java, and *metallica* Fruhstorfer, 1916, Celebes, also Sula Besi. An undenominated race occurs in Mindoro and Mindanao.)

12 ♂F apex rounded. Un both wings with a prominent, dark, submarginal line. ♂ up greyish purple, with narrow black borders. ♀ up black; F with a cuneiform, shining, purplish blue spot in the basal half of the wing . . . **N. pavana** (Horsfield)

(Races are *singapura* Corbet, 1938, Singapore, also Assam and Burma, *vajuva* Fruhstorfer, 1916, Siam, *pavana* (Horsfield, 1828), Java (? = *subperusia* (Snellen, 1896), *georgi* Fruhstorfer, 1916, Philippine Islands, and *visuna* Fruhstorfer, 1916, Celebes. An undenominated race occurs in the Andaman Islands.)

Of the above *Nacaduba* forms, the types of all except *georgi* Fruhstorfer, *nabo* Fruhstorfer, *valvidens* Toxopeus, *naevia* Toxopeus and *subperusia* (Snellen) have been available to me, although the bodies are missing from the male holotypes of *minja* Fruhstorfer and *tairëa* Fruhstorfer. By comparison with dissected material from neighbouring islands, it can be asserted, with a

fair degree of confidence, that these last two specimens are *N. hermus* forms: the female allotype of *minja* is an undoubted *N. hermus*. The type of *georgi* Fruhstorfer is that specimen figured in Semper, *Schmett. Phil.*, pl. 33, fig. 3, and is evidently a male of *N. pavana*, while there is no difficulty with the Toxopeus names, as the descriptions of the male genitalia are very clear. This leaves only the types of *nabo* Fruhstorfer and *subperusia* Snellen, and, from the evidence available, their identities cannot be regarded as finally settled.

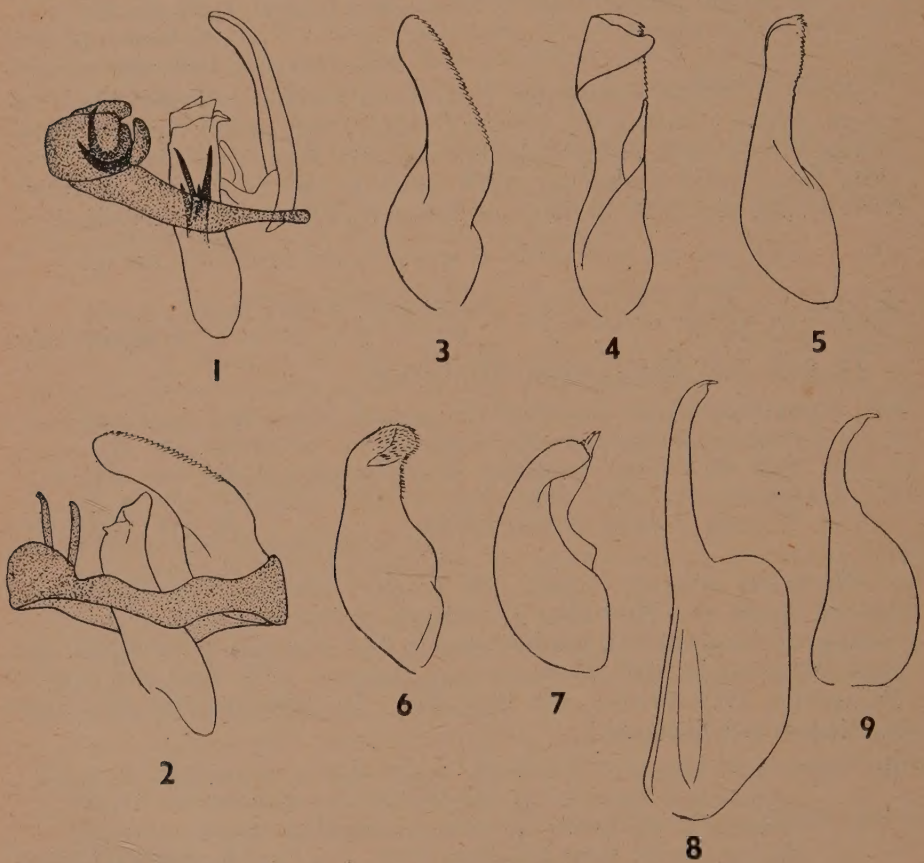


Fig. 1.—Male genitalia of *Niphanda asialis* (Nic.), North-east Sumatra (Holotype).

Fig. 2.—Male genitalia of *Nacaduba hermus* (C. Feld.), Amboina (Holotype).

Figs. 3–7.—Valva of (3) *Nacaduba hermus* (C. Felder), Amboina (Holotype), (4) *N. asaga asaga* (Fruhstorfer), Borneo (Holotype), (5) *N. ollyetti* Corbet, Ceylon (Holotype), (6) *N. pavana* (Horsfield), Java (Holotype), and (7) *N. lysa* Fruhstorfer, North-east Sumatra (Holotype).

Figs. 8 and 9.—Valva of *Marmessus rufotaenia rufctaenia* Fruhstorfer, Singapore, and *M. ravindra moorei* (Distant), Singapore.

Assam was specifically given as the type locality of *nabo*, but no specimens or preparations of Assamese *N. hermus* or *N. lysa* were found in the Fruhstorfer Collection, nor does the original description (Fruhstorfer, 1916, *Zool. Meded.*

2 : 108) refer to any published figure. Two circumstances in favour of regarding *nabo* as a *N. hermus* form are :

(*a*) The male holotype of *N. pavana nabo* forma *sidoma*, described by Fruhstorfer in the same place, is in the British Museum and is a *N. hermus* form from south India.

(*b*) Toxopeus (1929 : 233) placed *nabo* as conspecific with the species now referred to as *N. hermus*, and it is inadvisable to upset this except for very serious reasons. It is unfortunate that *nabo* has page priority over *lysa*, for, it must be admitted, the statement in the original description, " In der reich-violett überhauchten Oberfläche erinnern sie etwas an die sumatranische Inselrasse, übertreffen diese jedoch in der Spannweite," suggests *N. lysa* rather than *N. hermus*.

It is difficult to come to a sound conclusion regarding *subperusia* (Snellen), described from Java, and of which the type specimens were stated to be in Coll. Staudinger. From the original description it is impossible to decide the identity of the male, but, on the upperside, the female is evidently nearest to *N. pavana*. The female figured in Piepers and Snellen, 1918, *Rhop. Java* **4**, pl. xxi, fig. 50*d* (upper side only), appears to represent *N. pavana*, but Toxopeus refers to it as " *N. hermus subperusia* (Snellen)." It must be mentioned, however, that Snellen makes no mention of the dark submarginal line on the underside of both wings, which is such a characteristic feature of *N. pavana*.

Unfortunately, Snellen's name was published in 1896, and is one of the oldest in the *pavana* group. Nomenclaturally, it appears best to place *subperusia* as a synonym of *N. pavana pavana* (Horsfield, 1828), and this has been done in the National Collection.

To obviate any further confusion, the male genitalia of the five species of the *pavana* group of *Nacaduba* mentioned in this paper are figured.

Drina donina usira (C. and R. Felder).

Myrina usira was described in 1865 from a single male taken in " Malacca Interior " [probably Johore] by le Comte de Castelnau, and it has not been found in Malaya since. Indeed, were it not that the species has been reported from Borneo, the locality of Castelnau's specimen would have been open to serious doubt. Recently, a second Malayan specimen has been obtained (♂ Langkawi Islands, 1.iii.1940, *M. J. V. Miller*), and this specimen, like the type of *usira*, has the dark post-discal fasciae on the underside broader than is usual in the nominotypical form from Burma.

Marmessus theda (C. and R. Felder).

It has been found that a number of the forms dealt with as distinct species of *Biduanda* by Seitz (1926, *Grossschmett. Erde* **9** : 987–988) have the same male genitalia, and clearly must be regarded as comprising a single species distributed from Burma to Malaysia, the Philippines and Celebes.

The denominated subspecies are :

fabricii (Moore, 1884) (= *imitata* (H. H. Druce, 1895)), Tenasserim, also North Siam (the type of *imitata* from " Borneo " agrees with specimens

from Tenasserim), *renonga* (Corbet, 1938), Peninsular Siam, Renong, also Victoria Point and the Langkawi Islands, *thesmia* (Hewitson, 1863) (= *minara* (Fruhstorfer, 1912)), Sumatra, also Malaya proper, *niasica* (Röber, 1886) (= *demialba* (Staudinger, 1889)), Nias, *batunensis* (Fruhstorfer, 1912), Batu Islands, Pulau Tello, *pagiensis* Riley, 1945, North Pagi Islands, *albicans* Riley, 1945, Mentawi Islands, *umara* (Fruhstorfer, 1912) (= *depicta* (Fruhstorfer, 1912)), North Borneo, *vanica* (Fruhstorfer, 1912), South-east Borneo, *unicolor* (Staudinger, 1889), Palawan, *thaenia* (H. H. Druce, 1895), " Borneo " (the unique female type is quite distinct from any Bornean or Philippine examples in the British Museum ; it is nearer specimens from the Philippines, but the underside is paler and more lightly marked than in Mindanao), *theda* (C. and R. Felder, 1862), Luzon. Other races in the other Philippine Islands : *thaliarchus* (Staudinger, 1888), North Celebes, Minahassa, and *namusa* (Hewitson, 1863) (= *naenia* (Hewitson, 1863)), South Celebes.

Marmessus rufotaenia Fruhstorfer.

In 1932 Evans separated from *Marmessus ravindra*[1] (Horsfield) in Burma a smaller and closely allied species in which both sexes resembled the female of *M. ravindra boisduvali* (Moore), the male being without a brand on the upperside of the hind wing : this new species was denominated *M. archbaldi*.

Later, in 1945, Riley described *M. archbaldi alcyma* from south-east Sumatra, and referred to a somewhat similar male from Java.

With this distribution, it seemed probable that the new species occurred also in Malaya, but, in the absence of any material from this country, it was hardly possible to decide if Distant's figure in *Rhop. Malay*, pl. xliv, fig. 11, represented a small female of *M. ravindra moorei* (Distant) or the Malayan representative of *M. archbaldi*. As the specimen figured by Distant had been denominated *M. rufotaenia* by Fruhstorfer in 1912, its identity was a matter of nomenclatural importance.

Recently, Major C. F. Cowan found in his collection a male of the new species from Singapore, MacRitchie Reservoir, 17.xii.1936, and the identity has been confirmed by dissection. It is possible to separate the two species on facies, and it has been found that Distant's figure represents the new species. Hence, the smaller species must be known as *M. rufotaenia* Fruhstorfer, and the described subspecies are :

archbaldi Evans, 1932. South Burma.
rufotaenia Fruhstorfer, 1912. Singapore.
alcyma Riley, 1945. South-east Sumatra, and also Java.

M. rufotaenia has the underside of the hind wing darker than in the corresponding races of *M. ravindra*, and, at least in the male, the two can be distinguished by the presence in the former species of a narrow orange submarginal band running from the dorsum to vein 4 on the hind wing beneath. This band is very evident in Distant's figure, and, indeed, Fruhstorfer drew attention to it in his description of *M. rufotaenia*.

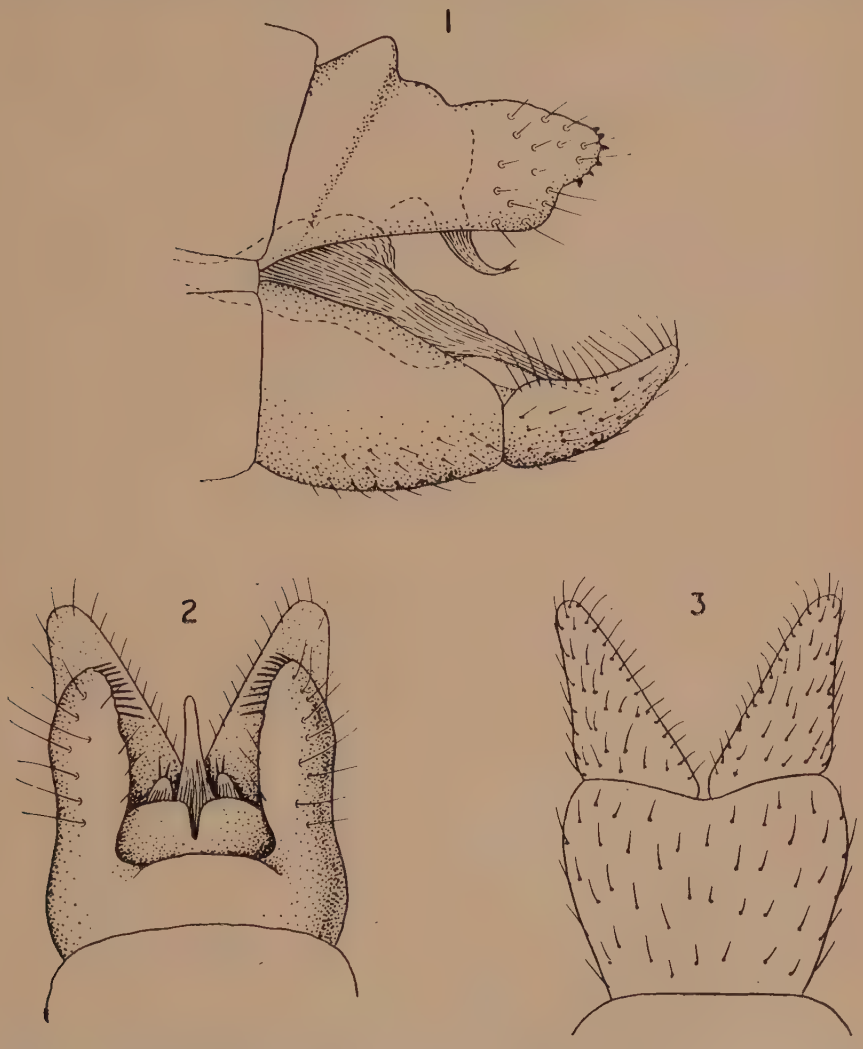
[1] Evans referred to *M. ravindra* under its preoccupied name, *Lisias* Fabricius.

THE GENITALIA OF *ECNOMUS DECEPTOR* McLACHLAN (TRICHOPTERA).

By Martin E. Mosely.

Ecnomus deceptor McLachlan, 1884, *Mon. Rev. Syn. Europ. Trich.*: 1st Add. Suppl.: 55–56, Pl. VI.

Previous to 1884, when McLachlan described *Ecnomus deceptor* from examples taken in Portugal and Belgium, only one species in the genus was known,



Figs. 1–3.—*Ecnomus deceptor* McLachlan. 1, genitalia lateral; 2, dorsal; 3, inferior appendages and 9th sternite ventral.

namely *tenellus* Rambur. *E. deceptor*, described in the 1884 Supplement, differed widely in its genitalia, so that the two species could easily be separated

even when pinned and dry. But since 1884 the number of known species in the genus has grown to no fewer than 45, and it soon became apparent that much fuller details of the genitalia were required, both in the descriptions and in the figures, for species to be determined with any certainty. The most easily recognizable characters lie in the shape of the superior and inferior appendages, and particularly in the form of the upper penis-cover, which is always more or less concealed and can only clearly be distinguished in a balsam preparation.

E. deceptor, unfortunately, resembles superficially a considerable number of African species, and so has been recorded, I think in error, from Sierra Leone.

In order to avoid further uncertainty, I am here redescribing and refiguring the species, using a cotype from Buillon in Belgium, from the McLachlan collection.

It may be stated that the spur formula is 3 4 4 as in *tenellus*.

Genitalia ♂.—From the side, distal margin of the 9th tergite elevated in a triangular projection; superior appendages long and broad, with an excision about midway along the upper margin and another on the distal margin; inner surfaces at the apices armed with short, black teeth, three or four minute, finger-like processes arising on the inner surface about the centre; upper penis-cover formed by a pair of short processes curving distally, very stout at their bases, tapering to acute apices armed with one or two bristles; penis with a large, circular hump on the upper surface at the base, tapering rather abruptly to a slender and produced apex; 9th sternite produced beyond the tergite as far as the middle of the superior appendages; inferior appendages short, triangular, diverging as seen from beneath.

A NEW SPECIES OF *ANACRONEURIA* (PLECOPTERA, PERLIDAE) FROM TRINIDAD.

By D. E. Kimmins.

The material from which this description has been made was bred from nymphs collected by Dr. H. B. N. Hynes during the period of his Colonial Agricultural scholarship at the Imperial College of Tropical Agriculture, 1941–42. No other species of Plecoptera were found, and this paper has been prepared to enable Dr. Hynes to refer by name to the nymphs in giving a description of them and their habits. The genus *Anacroneuria* contains a large number of species, some of which have been rather inadequately described, and its distribution ranges from Mexico and Central America to Brazil, Peru and Chile, but it has not hitherto been recorded from Trinidad.

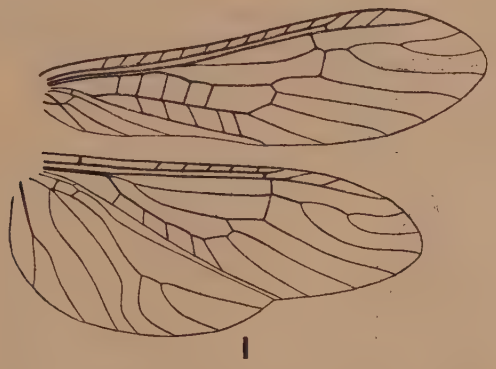


Fig. 1.—*Anacroneuria aroucana* sp.n., ♂. Wings.

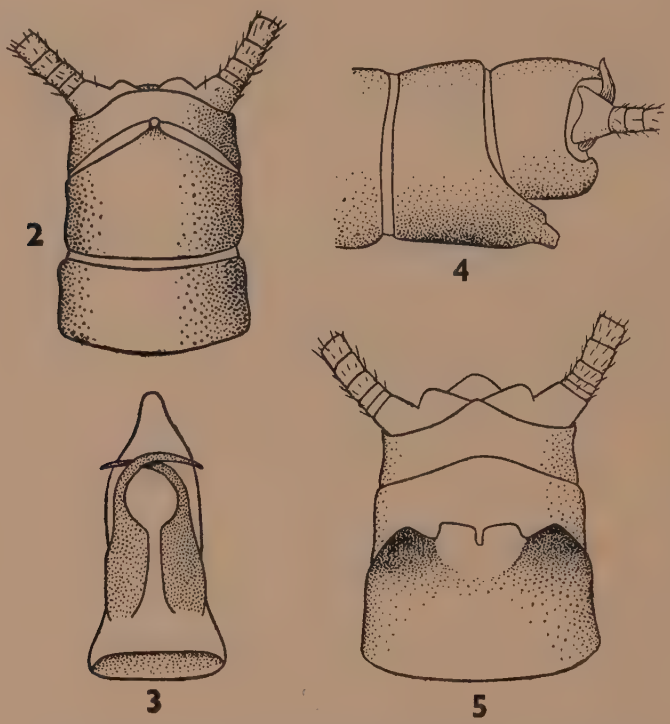
Anacroneuria aroucana sp.n.

♂ (*in formalin*).—Head yellowish, eyes purplish black; ocelli castaneous, margined posteriorly with black. On the frons before the M-line is a weak brownish area, and the ridge over the antennal bases is also faintly brownish. Antennae pale brownish, sutures finely annulated with yellowish. Palpi pale brownish, labial pair lighter than maxillary. Pronotum transverse, angles rounded, slightly narrower behind than in front; light greenish yellow, with considerable pale brownish shading on either side of the median line. Meso- and metanota light greenish yellow, the former with pale brownish shading near the wing bases. Femora greenish yellow, with a narrow black band on the upper surface at the apex; tibiae yellowish, suffused with brownish; tarsi yellowish, terminal segment brownish. Abdomen greenish yellow, cerci yellowish, not annulated. Ninth sternite prolonged and rounded apically, the centre of its apical margin elevated in a cylindrical "percussion knob," whose apex is truncate (fig. 2). Within the ninth sternite, in a cleared example, can be seen the penis, a long and bell-shaped structure with a narrow rounded apex, and bearing on its lower surface a pair of hooks (fig. 3). These latter are moderately broad in their basal halves, and then suddenly constricted to form slender sickle-like hooks. Sub-anal plates produced at their apices in upwardly directed hooks, slightly sinuate in side view (fig. 4). Tenth tergite produced at the centre of its apical margin in a rounded lobe. Wings pale brownish hyaline, venation brownish (fig. 1).

Length of body, 9·5 mm. *Length of forewing*, 9 mm.

♀ (*in formalin*).—Resembling male, but with rather more pronounced markings. Head with the weak brownish marking not only before the M-line, but between it and the ocelli and also behind the eyes. Subgenital plate of the eighth sternite produced at its margin to form four lobes; outer pair rounded apically, dark brownish, and separated from the inner pair by rounded excisions. Inner pair truncate; angles rounded, with a narrow rounded excision between them (fig. 5).

B.W.I., Trinidad, Arouca River, bred from nymphs; 1♂, em. 30.xi.1941, 2♀, em. 1.xii.1941, 4.xii.1941 (*Dr. H. B. N. Hynes*).



Figs. 2–5.—*Anacroneuria aroucana* sp.n. 2, apex of abdomen, ♂ ventral; 3, penis, ventral; 4, apex of abdomen, ♂, lateral; 5, apex of abdomen, ♀, ventral.

Type male, allotype and paratype females in formalin, and also nymphal material, presented to the British Museum (N.H.) by the collector. For fuller details of habitat, etc., reference should be made to Hynes, 1948, *Proc. R. ent. Soc. Lond.* (A) **23** (*in press*).

Owing to the inadequacy of many of the descriptions of published species of *Anacroneuria* (particularly the lack of any description or figure of the genitalia of either sex) no really useful purpose would be served by attempting a comparison of *A. aroucana* with other described species. Such comparison could only be made in the course of a monographic revision of the genus, and conditions at present do not permit the necessary examination of type material required for such a work.

THE VENATION IN THE GENUS *HYDROPTILA* DALMAN (TRICHOPTERA).

By Martin E. Mosely.

The venation in the Hydroptilidae is generally very obscure. So much so that, unfortunately, it is often a matter of conjecture as to what constitutes

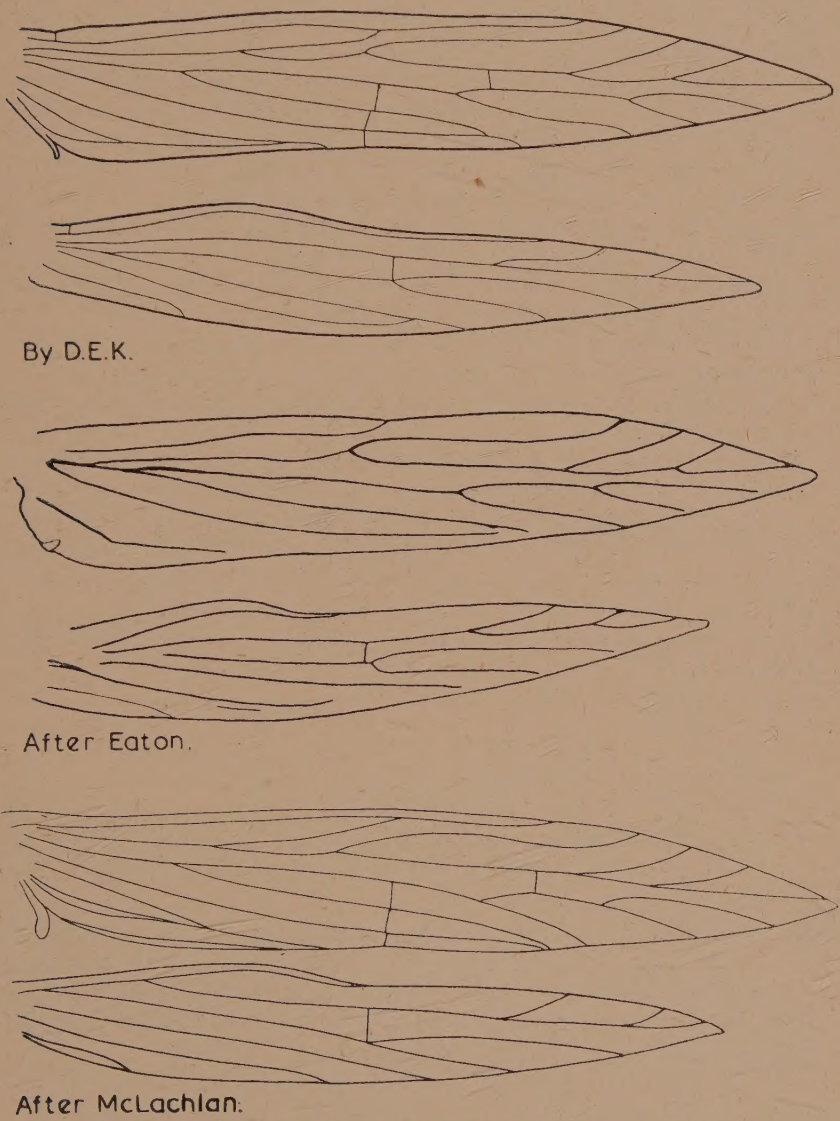


Fig. 1.—Interpretations of the wing venation in the genus *Hydroptila*.

a nervure or what a slight crease or perhaps even a streak of pigmentation in the membrane.

In the genus *Hydroptila* the position is a little more satisfactory and, generally, the nervures and forks in both anterior and posterior wings can be made out without much uncertainty. There seems to be so little variation in neuration in the very large number of species contained in the genus that authors of new species have generally not considered it necessary or of any value to give figures of the wings.

Recent writers of general works on the Trichoptera, including, I regret, the author of this paper (in *The British Caddis Flies*) have simply copied McLachlan's figure in his celebrated Monograph.

It was therefore somewhat unexpectedly that, when working out two new species in the genus, captured in Arabia I found that in the neuration as well as in the shape of the posterior wing there was an appreciable difference, sufficient to warrant the inclusion of figures of the wings.

Subsequently, on making a comparison of the new figures with a denuded pair of wings from an example of *Hydroptila sparsa* Curtis from the Hampshire River Test, I found, to my surprise, that the Hampshire and Arabian patterns were identical, and that it was the figure from McLachlan's Monograph, copied in *The British Caddis Flies* and many other works, that was at fault.

Eaton's original figure, though not strictly accurate, shows the shape of the wings better than that of McLachlan, but the situation that has arisen drives home the danger of repeating previous authors' figures and descriptions without adequate checking.

I give here figures of the wings by Mr. D. E. Kimmins, who has made his drawings from a freshly mounted (dry) pair of wings from an example of *H. sparsa* from the Hampshire River Test; by Eaton in his description of the genotype, *Phrixocoma sparsa* Curtis, published in 1880 (*Trans. ent. Soc. Lond.* **1880**: 511, pl. 58, fig. 1); and by McLachlan in *A Monographic Revision and Synopsis of the Trichoptera of the European Fauna*, pl. 58, fig. 1.

The first figure, drawn by Mr. Kimmins, is what I believe to be the correct interpretation of the *Hydroptila* venation.

Book Notice.

The Butterflies of Washington. By Ben V. Leighton. University of Washington Publications in Biology, Vol. 9, No. 2, pp. 47–63, 1946. Price 45 cents.

This paper contains a list of 141 species and 81 varieties of butterflies known to occur in the State of Washington, U.S.A., together with the localities from which they have been recorded. A brief discussion is devoted to general life cycles, the economic importance of half-a-dozen species and advantageous times for collecting.

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" December 1

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